

Breaking the Barriers for Improved Glycaemic Control: Primary Care and Secondary Care Interface

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The prevalence of diabetes is predicted to increase dramatically over the next 30 years, mostly as a result of Type 2 diabetes. To manage this increased burden, the following measures must be implemented: diabetes care must be delivered in the most suitable locations; people with diabetes must remain in contact with the appropriate healthcare professionals; and health professionals must use the most effective methods to treat their patients. The structure for diabetes care suggested by the World Health Organization uses terminology that is familiar universally. The reality, in terms of what can be delivered at primary- and secondary-care level will, however, differ greatly according to the extent of service development and the resources available. The optimum forum for diabetes care should have the advantages of the primary-care setting and, when required, the main advantages of the secondary-care setting, i.e. specialized knowledge and more sophisticated facilities. In most healthcare systems, particularly those without financial disincentives to the patient to be followed up in hospital, the tendency remains for secondary care to 'capture' and retain patients for longer than is required clinically. The end results are the overloading of hospital services, inappropriate use of resources and the tendency for patients to default from care because of the relative inaccessibility and remoteness of the hospital service. Issues with special reference to different models of diabetes care, use of patient registers and clinical guidelines, and the perceptions of patients regarding the successful use of services are presented. © 1998 John Wiley & Sons, Ltd.

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Predicted Future Increase in the Prevalence of Diabetes

Recent predictions^{1,2} suggest that diabetes will be transformed from merely an important public health problem to one of major, and in some countries possibly devastating, proportions. The World Health Organization (WHO)¹ predicts that the highest absolute increase in the prevalence of diabetes will be in South-East Asia and the highest relative increase, in relation to 1995, will be in Africa. By the year 2025 an additional 52 people per thousand of the population are predicted to have diabetes in South-East Asia. In Africa, prevalence is predicted to increase 5-fold, mostly as a result of Type 2 diabetes (Figure 1).

In order to manage the burden of an increased prevalence of diabetes, the following should be ensured: that diabetes care is delivered in the most suitable locations; that people with diabetes remain in contact with the appropriate healthcare professionals; and that health professionals use the most effective methods to treat their patients.

Diabetes care is a long-term partnership between

professional teams and people who have to live with diabetes. No system of care will achieve its full potential without being aware of the views of patients. Comparatively little effort has been made to explore patients' views, at least in any systematic way, which is strange in an area of clinical practice that prides itself on regarding the patient as central to the process of care.

Models of Diabetes Care

King, Gruber and Lander, in their work for the WHO,³ have laid out a structure for diabetes care using terminology that is familiar everywhere (Table 1). Optimal primary care would consist of a diabetes team with sufficient expertise to provide basic diagnostic skills, basic education and treatment of diabetes and its complications—functions best delivered by a multidisciplinary diabetes team.

Although the terminology may be universal, the actual care system is very different and varies greatly depending on the extent of service development and the resources available. In many parts of the world (ironically those parts liable to experience the highest absolute and relative increases in diabetes prevalence) primary care services will be rudimentary and will be at the 'minimal' level in the scheme of King *et al.*³ The care package

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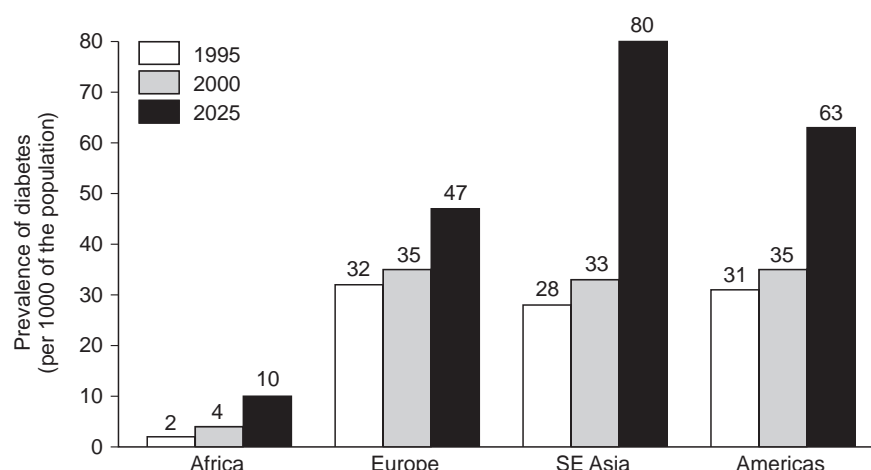


Figure 1. Diabetes prevalence in 1995 (estimated), 2000 and 2025 (predicted) in four continents (adapted from Ref. 1)

Table 1. Levels of diabetes care (King *et al.*, 1995)

Levels of development and resource	Level of care		
	Primary	Secondary	Tertiary
Minimal	Paramedical staff basic diagnostics essential drugs	Physician basic education basic treatment of complications	Diabetes team
Desirable	Physician basic education basic treatment of complications	Diabetes team	Diabetes unit
Optimal	Diabetes team	Diabetes unit	Diabetes centre

consists of paramedical staff with, at best, basic diagnostic skills and the ability to dispense essential drugs including insulin if available.

More developed healthcare systems—those of Europe and North America—have the luxury of a debate about the optimal place for routine diabetes care to be delivered. Kinmonth *et al.*,⁴ and Murphy *et al.*,⁵ have explored the views of patients before and after the introduction of an organized primary care system of diabetic surveillance. Of the 55 patients with Type 2 diabetes interviewed before the introduction of the scheme, 46 (84 %) wanted their primary care physicians (GPs) to be involved in future diabetes care and only six wished to continue with hospital review alone.⁵ Hospital doctors and GPs were rated equally in terms of their perceived knowledge of diabetes but GPs, together with practice nurses, were rated more highly for communication and accessibility.

After the introduction of the scheme,⁵ attendance for diabetes care improved and patients stated that they attached more importance to their diabetes and its medical review. Communication, accessibility and convenience continued to be rated more highly in primary care and the impression that the GP took the more holistic view was exemplified by comments from patients

such as: 'they [GPs] concern themselves with you, whereas the hospital doctor concerns himself with diabetes';⁵ and 'he sees me whatever's wrong with me and he should have a good general knowledge of me'.¹⁵ These and other research findings³ suggest that care in the ideal primary care setting is accessible, holistic and generalized, while secondary care has the opposite characteristics (Table 2).

The optimum forum for diabetes care should have the advantages of the primary care setting and the main advantage of the secondary care setting, i.e. specialized knowledge and more sophisticated facilities. For Type 2 diabetes these factors are more commonly needed when diabetic complications and associated morbidity require

Table 2. Characteristics of primary and secondary care as perceived by the patient

Primary care	Secondary care
More accessible	More remote
Holistic	Disease orientated
Generalist	Specialist
More communicative staff	Less communicative staff
Less sophisticated facilities	More sophisticated facilities

investigation and treatment that are not within the primary care team's expertise. The generalization that care of the insulin-treated patient must be centred on the hospital service, while that of the non-insulin-treated patient can take place in primary care is an oversimplification. The complex combination of Type 2 diabetes in the middle-aged patient with concurrent obesity, dyslipidaemia, hypertension and cardiovascular disease can present therapeutic and behavioural challenges that may be best dealt with in the specialist hospital clinic.

In most systems, particularly those with no financial disincentive to the patient to be followed up in hospital, secondary care may 'capture' and retain patients for longer than is required for any clinical reason. The end result of this is the overloading of hospital services, their inappropriate use and the tendency for patients to abandon care because of the relative inaccessibility and remoteness of the hospital service.⁶

In terms of degree of glycaemic control as measured by HbA_{1c}, trials of hospital vs. primary care follow up in Type 2 diabetes⁷ fail to show any significant benefit of hospital care when that in primary care is supported by adequate call and recall systems. Furthermore, in terms of equity across ethnic groups, at least one study from the USA⁸ has shown little difference between the frequency of follow up of Type 2 diabetes in non-Hispanic whites, African-Americans and Mexican-Americans although methods of glycaemic control and education differed.

Call and Recall Using Registers

In their recent review of diabetes care,⁷ Griffin and Kinmonth identified five trials that had randomized people with Type 2 diabetes to either follow-up care with their GPs or at a hospital diabetes clinic. Four of these randomized, controlled trials were carried out in the UK⁹⁻¹² and the fifth¹³ in Australia.

Although organized follow up in primary care did not differ significantly in terms of quality of glycaemic control, patients randomized to hospital care were followed up more assiduously (odds ratio for continuation of follow up [hospital vs. primary care] = 3.21 (95 % CI; 2.27-4.56)). However, when practices that use computerized call and recall systems were separated from those that did not, primary care based follow up was found to be superior to that of hospital care (odds ratio for continuation of follow up [hospital vs. primary care] = 0.40 (95 % CI; 0.24-0.67)). The potential for GPs to keep in regular touch with their patients was clearly enhanced by this facility and proved superior to hospital follow up in this important aspect of care.

No systematic study designed to investigate patients' attitudes to being placed on a register in order to recall them for routine diabetes care has been published to date. However, a search of the literature has revealed a study designed to investigate the attitudes of women

included in a cervical screening register.¹⁴ This study, carried out in New South Wales, Australia, collated the views of 478 women who were asked whether they would agree to their details being forwarded automatically (i.e. without their consent being sought) to the state Cancer Council so that their details could be placed on a register for call and recall purposes. Of the women participating in the study, 327 (68 %) agreed to automatic consent, 152 (32 %) preferred this option while 165 (35 %) preferred to give their verbal consent. Eighty-two (± 17 %) opted for written consent as their preferred option. If people with diabetes were asked the same question, the proportion agreeing to automatic entry on a register could predictably exceed two-thirds of the people surveyed, although this is clearly dependent on who keeps the register, in which country the question is asked, the age group of the people being asked and other socio-demographic factors such as ethnic origin.

Development and Use of Clinical Guidelines

Several questions concerning the development of clinical guidelines need to be asked when assessing diabetes care options: to what extent have these guidelines been used in practice? Which characteristics of the guidelines make them most likely to be used? What do patients and their relatives think of GPs who use guidelines as an aid to clinical decision making?

One of the most comprehensive assessments of the literature on the implementation of clinical guidelines is number 8 in the series of 'Effective Health Care' bulletins¹⁵ produced by the Nuffield Institute in Leeds in collaboration with colleagues at the University of York. This search of the literature (in 1994) identified 91 studies of guideline introduction (Table 3): 46 were designated as 'Grade I' evidence (randomized, controlled trials randomizing doctors); 21 were designated 'Grade II' evidence (randomized, controlled trials randomizing

Table 3. Analysis of 91 studies of clinical guideline implementation*

Country of study	Grade of evidence			Total
	Grade I	Grade II	Grade III	
United States	33	13	16	62
United Kingdom	5	3	6	14
Canada	6	5	1	12
Israel	1	0	0	1
France	0	0	1	1
Australia	1	0	0	1
Total	46	21	24	91

*adapted from Effective Healthcare Bulletin 1994; Grade I = trial randomized by individual doctor, team, unit or hospital; Grade II = trial randomized by patient, or before and after study controlled by untargeted activity; Grade III = before and after study controlled by second site or time series analysis

patients or before and after studies controlled by activity not targeted by guidelines); and the remaining 24 were 'Grade III' studies (before and after studies controlled by site or time series analyses). Most of these studies (62–68 %) were carried out in the USA, 14 in the UK, 12 in Canada and one each in Israel, France and Australia. Five^{16–20} of these studies included, or specifically dealt with, the introduction of diabetes guidelines.

For guidelines to be relevant across the primary/secondary care interface they need to include references to the clinical decisions that have to be taken in primary care and, in particular, the decision to refer to secondary care. Is the involvement of local GPs in the development of guidelines an advantage with regard to the effectiveness of implementation? This systematic review of the guideline literature¹⁵ was not able to provide a clear answer to this question and no information was available regarding this issue for diabetes guidelines specifically. None of the five diabetes guidelines studies examined this issue and, of the other studies that did, two suggested that end-user involvement in guideline development facilitated guideline implementation; the remaining four did not support this hypothesis. As the reviewers of the guideline literature stated 'guidelines produced locally by professional end-users may at times be seen as less credible than those produced by...opinion leaders...or national experts'.¹⁵

No information is available on the opinions of patients when they become aware that their healthcare professional is consulting clinical guidelines, i.e. whether they are pleased because an effort is being made to follow the most up-to-date advice or are they perturbed because he or she needs to consult written or computer-based material in order to decide the course of action. However, evidence does exist on the related question of what patients think of their GPs using computers during the consultation. In general, those patients questioned seem to regard the use of computers as enhancing the ability of doctors to make the correct clinical decisions and most are convinced that the quality of care will be improved.^{21,22} Is it, therefore, time we explored these issues in diabetes care and systematically examined the views of patients and whether their empowerment can increase the extent to which health professionals sensibly use guidelines as a positive contribution to enhancing the quality of care?

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